PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number (Optional) ATX-011.04	
	Application Number 10/649,232 Conf. #6203	Filed August 26, 2003
	First Named Inventor Edward P. Ingenito	
	Art Unit 3763	Examiner Q. H. Vu

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

[ ] applicant /inventor.

[ ] assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

[X] attorney or agent of record.
Registration number 44,719

[ ] attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34. _____

/Dana M. Gordon/
Signature

Dana M. Gordon
Typed or printed name

(617) 832-1000
Telephone number

August 18, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[X] *Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor:	Ingenito, E. P.	Atty. Docket No.: **ATX-011.04**
Serial No.:	10/649,232	Examiner: Vu, Q.-N. H.
Filing Date:	August 26, 2003	Group Art Unit: 3763
Title:	*Tissue Volume Reduction*	

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sirs:

In response to the final Office Action mailed on June 1, 2009, and in conjunction with a Notice of Appeal under 37 C.F.R. § 41.31 and appeal fee payment, Applicant respectfully requests a pre-appeal brief review of the above referenced application.

I. Rejections under 35 U.S.C. § 103(a)

Perkins

Claims 1 and 15-18 are pending and stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Pat. No. 6,287,290 to Perkins et al. ("Perkins"). Applicant respectfully traverses.

As an initial matter, Applicant's methods relate to reducing lung volume in a patient by introducing material through a bronchoscope into a diseased alveolar region within the targeted region, where the material induces collapse of the targeted region, promotes adhesion between one portion of the lung and another, and promotes fibrosis in or around the collapsed region of the lung. *Specification* at p. 1, ll. 31 to p. 2, ll. 1-9. For example, claim 1 recites a non-surgical method of reducing lung volume in a patient, the method comprising administering, by way of the patient's trachea, to a diseased alveolar region of the patient's lung, a composition comprising an anti-surfactant, wherein administering the composition to the diseased alveolar region causes collapse of the diseased alveolar region and one portion of the diseased alveolar region adheres to another portion of the diseased alveolar region, thereby reducing the patient's lung volume.

The Office Action contains several factual errors regarding the teachings of Perkins. The Examiner incorrectly states that Perkins discloses "advancing the bronchoscope (see 2:15+ and 8:18+) and introducing composition or biological material comprising a sealing (introducing fibrin

glue, see col. 10:35+) or occluding a plug 282 containing anti-surfactant (collagen hydrogel) to collapse the diseased alveolar (CLT) region (see 10:37+)." *Office Action* at page 2.

As explained in Applicant's response of March 26, 2009 ("Response"), Perkins does not introduce a composition or biological material comprising a sealing plug to the alveolar region to produce lung collapse. *Response* at p. 4. Instead, Perkins first collapses the lung by aspiration (e.g., applying a vacuum) or applying an external force. *Perkins* at col. 2, ll. 30-34. The collapsing step may be followed by sealing an air passage leading to the collapsed region of the lung by "deploying a plug within the air passage." *Id.* at col. 2, ll. 34-36; *see also* col. 9, ll. 24-29; col. 10, ll. 37-58; and Figure 4C. Thus, the sealing is performed to prevent reinflation of the already collapsed lung, and does not contribute to the collapse of the lung as the Examiner contends. *See, e.g., Perkins* claim 1.

Importantly, Perkins explicitly defines an "air passage" as a "segment of the branching bronchus which deliver[s] to and receive[s] air from the alveolar regions of the lung." *Perkins*, col. 6, ll. 34-39; *see also Response* at p. 4-5. Exhibit A (Fig. 1-2) of Applicant's Response depicts the human airway system. The left and right bronchi are the two main tubes of the lung that extend from the trachea and branch off within the lung to form secondary and tertiary bronchi. The bronchi further branch to form smaller bronchioles and terminal bronchioles. At the ends of the terminal bronchioles are the alveoli. *Response* at p. 5. Based on Perkins' definition of "air passage" and the structure of the human airway system, Applicant submits that Perkins seals at the bronchi before the lung branches into its substructure, well before the alveolar region. Nowhere does Perkins teach or suggest sealing the lung in the alveolar region.

The Examiner also incorrectly states that "[t]he collapsed region will be sealed by methods include the use of suturing, gluing[,] energy mediated tissue adhesion, etc...." *Id.* at p. 2-3. To the contrary, Perkins never teaches or suggests that a sealing or adhesive material may be introduced into the alveolar region to cause lung collapse or adhering within the alveolar region. Rather, Perkins merely explains that the invention may also include "sealing or occluding the air passage leading to the collapsed tissue." As discussed above, the "air passage" is the bronchus of the lungs, not the alveolar region.

In summary, Perkins' method of lung volume reduction contemplates first collapsing the lung by aspiration or by applying an external force, followed by optionally sealing the lung with a plug at the level of the bronchi. Perkins never introduces a material into the alveolar region of the lung, where the material induces collapse, and promotes adhesion and fibrosis, as required in the rejected claims.

Based on these incorrect statements regarding the teachings of Perkins, the Examiner concludes that it would have been obvious "to try the sealing or occluding plug method in an attempt to collapsed tissue region, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, the method of sealing or occluding plug as suggested in the prior art, it would have been obvious to use for collapsing or lung volume reduction." *Office Action*. at p. 3. Applicant respectfully traverses. As discussed above, Perkins merely describes collapsing a region of the lung by aspiration or application of an external force, optionally followed by delivering a plug to occlude the "air passage" leading to the collapsed tissue region.

Applicant submits that the numerous and substantial distinctions between the claimed methods and the teachings of Perkins are beyond the scope of the variations that the Examiner may reasonably characterize as "obvious to try" to one of ordinary skill in the relevant art in light of Perkins. For example, the differences between the claimed methods and the teachings of Perkins cannot reasonably be described as merely selecting a particular species from a well-defined genus of limited scope. Nor can those same differences be reasonably characterized as the result of nothing more than routine experimentation or refinement of what was known in the art. *Response* at p. 6.

Applicant further submits that the skilled artisan would have had no reasonable expectation of success in developing the claimed methods in light of Perkins because of the pulmonary phenomenon known as "collateral ventilation." Collateral ventilation occurs when apparently isolated alveolar regions are ventilated through passages or channels that bypass standard airways. As a result of collateral ventilation, a section of a lung targeted for volume reduction via occlusion at the level of an "air passage" still receives airflow due to the presence of auxiliary airways, thereby preventing lung collapse (also called "atelectasis"). Based on their understanding of collateral ventilation, those of ordinary skill in the art would not have viewed the methods of Perkins as effective in producing lung collapse, thereby preventing the targeted region of the lung from receiving air flow. *Response* at p. 6-8.

Exhibit B of Applicant's Response depicts the effects of collateral ventilation on lung volume reduction. Exhibit B consists of four illustrations: 1) normal lung tissue with no collateral ventilation; 2) emphysematous lung tissue with collateral ventilation into which a bronchial plug has been inserted; 3) emphysematous lung tissue with collateral ventilation into the alveolar regions of which a composition comprising a protease has been introduced; 4) and the resulting reduction in volume of the emphysematous lung tissue after such protease treatment. The second illustration demonstrates how collateral ventilation interferes with the method of lung volume reduction

disclosed by Perkins. Thus, the second illustration demonstrates that in the method of Perkins, the lung can still receive airflow when collateral ventilation is present, thereby preventing atelectasis. *See Response* at p. 7.

Exhibits C, D, E and F submitted with the Response further discuss the problematic effects of collateral ventilation in bronchoscopic lung volume reduction therapy. The references explain that collateral ventilation prevents atelectasis when the lung is occluded in the bronchial portion of the airway (i.e., at the level of an "air passage" as defined in Perkins). *See, e.g., Response* Ex. C, p. 457; and Ex. D, p. 127, col. 2 to p. 128, col. 1. In other words, the Exhibits establish that the skilled artisan would understand that methods like those described in Perkins are generally ineffective in achieving lung volume reduction. Consequently, Applicant respectfully contends that one of ordinary skill in the art would not have had a reasonable expectation of success in developing the claimed methods based on Perkins' method for lung volume reduction.

For the reasons set forth above, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 103(a) based on Perkins.

Perkins in view of Edwardson

Claim 13 is pending and stands rejected as being obvious over Perkins in view of U.S. Patent No. 5,739,288 to Edwardson et al. ("Edwardson"). The Examiner relies on Edwardson for describing a fibrin sealant composition that includes, among other possibilities, antibiotics. *Office Action* at p. 4. The Examiner alleges that "it would have been obvious to use the fibrin sealant of Edwardson et al. in order to provide an enhanced fibrin formulation for tissue closure thereby improving patient recovery times. *Office Action* at p. 3. Applicant respectfully traverses.

First, Applicant respectfully disagrees with the Examiner's contention that Applicant has attempted to "show non-obviousness by attacking the cited references individually where the rejection is based on a combination of references." *Office Action* at page 7. To the contrary, Applicant has argued that the skilled artisan would not arrive at the claimed invention based on the combination of Perkins and Edwardson because the cited combination does not disclose or render "obvious to try" all of the limitations of the rejected claims. *Response* at p. 8-12.

At best, using the fibrin sealant of Edwardson in the methods of Perkins might provide the skilled artisan with a material for occluding or sealing leaks in the bronchus leading to the lung after collapse by aspiration. Nevertheless, use of the fibrin sealant in the methods of Perkins would not result in or render "obvious to try" the lung volume reduction methods claimed by Applicant. Therefore, Applicant respectfully asserts that the combination of Perkins and Edwardson does not render unpatentable claim 13. *Response* at p. 8-10.

Accordingly, Applicant respectfully requests withdrawal of this rejection.

Perkins in view of Edwardson and Antanavich

Claims 2-12 are pending and stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Perkins in view of Edwardson, and further in view of U.S. Patent No. 5,814, 022 to Antanavich et al. ("Antanavich"). Applicant respectfully traverses the rejection. Antanavich describes an apparatus for accurately dispensing tissue sealants, one of which sealants may be "an adhesive protein solution having a fibrinogen content of from 3 to 12%." The Examiner asserts that it would have been obvious to one of skill in the art "to provide the composition of fibrinogen from 3-12%, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art." *Office Action* at p. 6.

Applicant respectfully asserts that the sole arguably relevant contribution from Antanavich to the Examiner's obviousness rejection is the disclosure of an adhesive protein solution having a fibrinogen content from 3 to 12 %. The combination of Perkins and Edwardson, at best, describes delivering a fibrin plug to occlude an air passage leading to a region of the lung ***after*** the lung has been independently collapsed by vacuum aspiration or the application of an external force. *Response* at p. 12. Accordingly, the combination of Perkins, Edwardson, and Antanavich does not teach or render "obvious to try" all of the limitations of the claims.

Based on the foregoing, Applicant respectfully requests withdrawal of this rejection.

II. Conclusion

In view of the above amendments and remarks, Applicant respectfully requests withdrawal of all of the outstanding claim rejections. Applicant believes he has provided for all required fees in connection with the filing of this Request. Nevertheless, the Commissioner is hereby authorized to charge any additional required fees due in connection with the filing of this Request to our Deposit Account, **06-1448** reference **ATX-011.04**.

Respectfully submitted,
Foley Hoag LLP

By: /Dana M. Gordon/
Dana M. Gordon, Ph.D.
Reg. No. 44,719
Attorney for Applicant

155 Seaport Boulevard
Boston, MA 02210

Telephone: (617) 832-1000
Telecopier: (617) 832-7000

Date: August 18, 2009